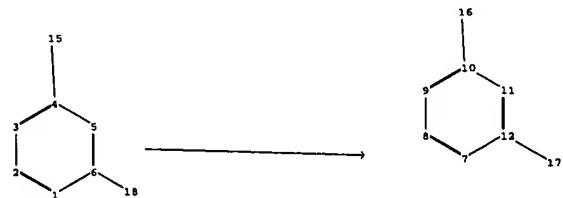
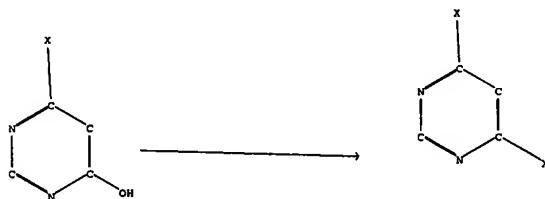


L Number	Hits	Search Text	DB	Time stamp
1	213	((544/344).CCLS.)	USPAT; US-PGPUB	2003/02/10 15:13
2	1	((544/344).CCLS.) and (("4" adj chloro with "6" adj chloro\$) OR ("4" adj "6" adj dichloro\$))	USPAT; US-PGPUB	2003/02/10 15:18
3	0	((544/344).CCLS.) and (("4" adj chloro with "6" adj chloropyrim\$) OR ("4" adj "6" adj dichloropyrim\$))	USPAT; US-PGPUB	2003/02/10 15:24
4	0	((544/344).CCLS.) and (("6" adj chloropyrim\$) OR ("6" adj dichloropyrim\$))	USPAT; US-PGPUB	2003/02/10 15:26
5	128	((544/344).CCLS.) and ("4" with "6")	USPAT; US-PGPUB	2003/02/10 15:27
6	3	((544/344).CCLS.) and ("4" with "6" WITH \$pyrimidine)	USPAT; US-PGPUB	2003/02/10 18:30
7	1	((544/344).CCLS.) and ("4" with "6" WITH \$opyrimidine)	USPAT; US-PGPUB	2003/02/10 18:37

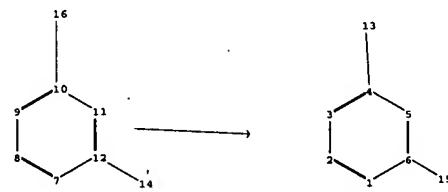
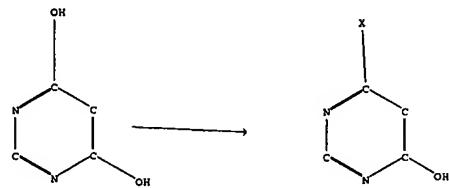


```

chain nodes :
 15 16 17 18
ring nodes :
 1 2 3 4 5 6 7 8 9 10 11 12
chain bonds :
 4-15 6-18 10-16 12-17
ring bonds :
 1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12
exact/norm bonds :
 6-18
exact bonds :
 4-15 10-16 12-17
normalized bonds :
 1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12

Match level :
 1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom
 12:Atom 15:CLASS 16:CLASS 17:CLASS 18:CLASS
fragments assigned product role:
 containing 7
fragments assigned reactant/reagent role:
 containing 1

```



```

chain nodes :
 13 14 15 16
ring nodes :
 1 2 3 4 5 6 7 8 9 10 11 12
chain bonds :
 4-13 6-15 10-16 12-14
ring bonds :
 1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12
exact/norm bonds :
 6-15 10-16 12-14
exact bonds :
 4-13
normalized bonds :
 1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12

Match level :
 1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom
 12:Atom 13:CLASS 14:CLASS 15:CLASS 16:CLASS
fragments assigned product role:
 containing 1
fragments assigned reactant/reagent role:
 containing 7

```

Connecting via Winsock to STN

Welcome to STN International! Enter x:x

LOGINID:ssspta1611txm

PASSWORD:

TERMINAL (ENTER 1, 2, 3, OR ?):2

* * * * * * * * * Welcome to STN International * * * * * * * * *

NEWS 1 Web Page URLs for STN Seminar Schedule - N. America
NEWS 2 Apr 08 "Ask CAS" for self-help around the clock
NEWS 3 Apr 09 BEILSTEIN: Reload and Implementation of a New Subject Area
NEWS 4 Apr 09 ZDB will be removed from STN
NEWS 5 Apr 19 US Patent Applications available in IFICDB, IFIPAT, and IFIUDB
NEWS 6 Apr 22 Records from IP.com available in CAPLUS, HCAPLUS, and ZCAPLUS
NEWS 7 Apr 22 BIOSIS Gene Names now available in TOXCENTER
NEWS 8 Apr 22 Federal Research in Progress (FEDRIP) now available
NEWS 9 Jun 03 New e-mail delivery for search results now available
NEWS 10 Jun 10 MEDLINE Reload
NEWS 11 Jun 10 PCTFULL has been reloaded
NEWS 12 Jul 02 FOREGE no longer contains STANDARDS file segment
NEWS 13 Jul 22 USAN to be reloaded July 28, 2002;
saved answer sets no longer valid
NEWS 14 Jul 29 Enhanced polymer searching in REGISTRY
NEWS 15 Jul 30 NETFIRST to be removed from STN
NEWS 16 Aug 08 CANCERLIT reload
NEWS 17 Aug 08 PHARMAMarketLetter(PHARMAML) - new on STN
NEWS 18 Aug 08 NTIS has been reloaded and enhanced
NEWS 19 Aug 19 Aquatic Toxicity Information Retrieval (AQUIRE)
now available on STN
NEWS 20 Aug 19 IFIPAT, IFICDB, and IFIUDB have been reloaded
NEWS 21 Aug 19 The MEDLINE file segment of TOXCENTER has been reloaded
NEWS 22 Aug 26 Sequence searching in REGISTRY enhanced
NEWS 23 Sep 03 JAPIO has been reloaded and enhanced
NEWS 24 Sep 16 Experimental properties added to the REGISTRY file
NEWS 25 Sep 16 CA Section Thesaurus available in CAPLUS and CA
NEWS 26 Oct 01 CASREACT Enriched with Reactions from 1907 to 1985
NEWS 27 Oct 21 EVENTLINE has been reloaded
NEWS 28 Oct 24 BEILSTEIN adds new search fields
NEWS 29 Oct 24 Nutraceuticals International (NUTRACEUT) now available on STN
NEWS 30 Oct 25 MEDLINE SDI run of October 8, 2002
NEWS 31 Nov 18 DKILIT has been renamed APOLLIT
NEWS 32 Nov 25 More calculated properties added to REGISTRY
NEWS 33 Dec 02 TIBKAT will be removed from STN
NEWS 34 Dec 04 CSA files on STN
NEWS 35 Dec 17 PCTFULL now covers WP/PCT Applications from 1978 to date
NEWS 36 Dec 17 TOXCENTER enhanced with additional content
NEWS 37 Dec 17 Adis Clinical Trials Insight now available on STN
NEWS 38 Dec 30 ISMEC no longer available
NEWS 39 Jan 13 Indexing added to some pre-1967 records in CA/CAPLUS
NEWS 40 Jan 21 NUTRACEUT offering one free connect hour in February 2003
NEWS 41 Jan 21 PHARMAML offering one free connect hour in February 2003
NEWS 42 Jan 29 Simultaneous left and right truncation added to COMPENDEX,
ENERGY, INSPEC

NEWS EXPRESS January 6 CURRENT WINDOWS VERSION IS V6.01a,
CURRENT MACINTOSH VERSION IS V6.0b(ENG) AND V6.0Jb(JP),
AND CURRENT DISCOVER FILE IS DATED 01 OCTOBER 2002

NEWS HOURS	STN Operating Hours Plus Help Desk Availability
NEWS INTER	General Internet Information
NEWS LOGIN	Welcome Banner and News Items
NEWS PHONE	Direct Dial and Telecommunication Network Access to STN
NEWS WWW	CAS World Wide Web Site (general information)

Enter NEWS followed by the item number or name to see news on that specific topic.

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FILE 'HOME' ENTERED AT 15:31:17 ON 10 FEB 2003

FILE 'CASREACT' ENTERED AT 15:31:27 ON 10 FEB 2003
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FILE CONTENT: 1907 - 9 Feb 2003 VOL 138 ISS 6

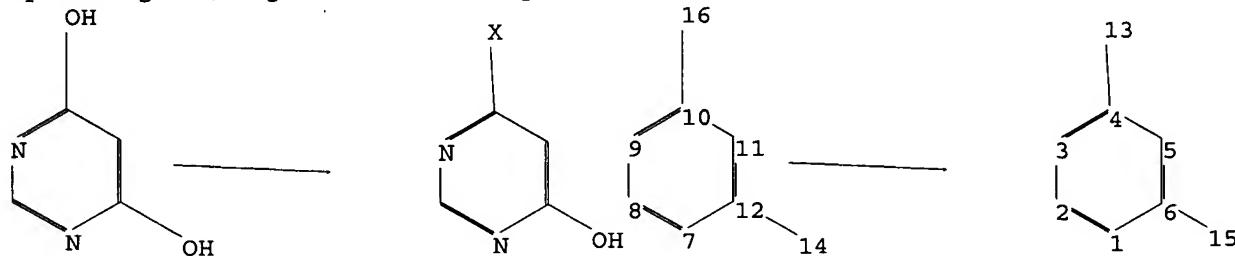
Some records from 1974 to 1991 are derived from the ZIC/VINITI data file and provided by InfoChem and some records are produced using some INPI data from the period prior to 1986.

This file contains CAS Registry Numbers for easy and accurate substance identification.

Crossover limits have been increased. See HELP RNCROSSOVER for details.

Structure search limits have been raised. See HELP SLIMIT for the new, higher limits.

=>
Uploading C:\Program Files\Stnexp\Queries\10109093.str



chain nodes :

```
13 14 15 16
ring nodes :
1 2 3 4 5 6 7 8 9 10 11 12
chain bonds :
4-13 6-15 10-16 12-14
ring bonds :
1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12
exact/norm bonds :
6-15 10-16 12-14
exact bonds :
4-13
normalized bonds :
1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12
```

```
Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom
11:Atom 12:Atom 13:CLASS 14:CLASS 15:CLASS 16:CLASS
fragments assigned product role:
containing 1
fragments assigned reactant/reagent role:
containing 7
```

L1 STRUCTURE UPLOADED

```
=> s 11
SAMPLE SEARCH INITIATED 15:31:49 FILE 'CASREACT'
SCREENING COMPLETE -      30 REACTIONS TO VERIFY FROM      7 DOCUMENTS
100.0% DONE      30 VERIFIED      1 HIT RXNS      1 DOCS
SEARCH TIME: 00.00.01

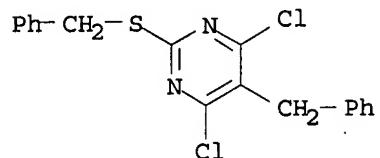
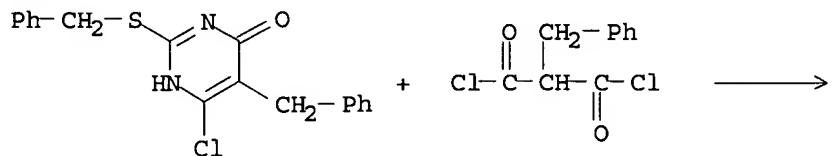
FULL FILE PROJECTIONS: ONLINE **COMPLETE**
                      BATCH **COMPLETE**
PROJECTED VERIFICATIONS:    272 TO      928
PROJECTED ANSWERS:          1 TO       79
```

```
L2      1 SEA SSS SAM L1 (      1 REACTIONS)
```

```
=> d scan
```

TI Heterocyclic syntheses with malonyl chloride. Part 14. A direct synthesis of 4,6-dichloropyrimidines with 5-benzyl or -phenyl and 2-thioalkyl or -thiophenyl substituents

RX(2) OF 10



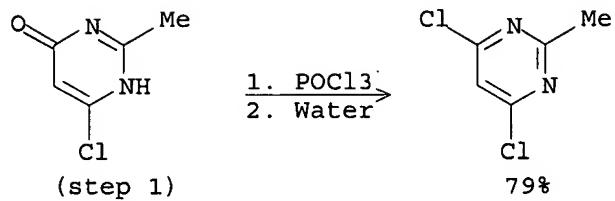
ALL ANSWERS HAVE BEEN SCANNED

=> s 11 sss full
FULL SEARCH INITIATED 15:32:49 FILE 'CASREACT'
SCREENING COMPLETE - 234 REACTIONS TO VERIFY FROM 96 DOCUMENTS
100.0% DONE 234 VERIFIED 15 HIT RXNS 10 DOCS
SEARCH TIME: 00.00.02

L3 10 SEA SSS FUL L1 (15 REACTIONS)

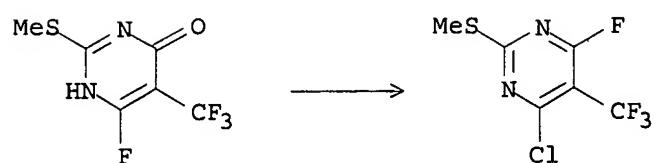
=> d 1-10

RX(1) OF 36



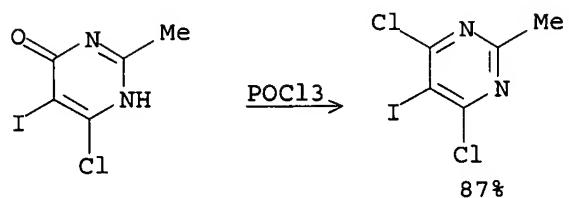
REF: Heterocyclic Communications, 5(6), 503-508; 1999

RX(1) OF 3



REF: Jpn. Kokai Tokkyo Koho, 62273964, 28 Nov 1987, Showa

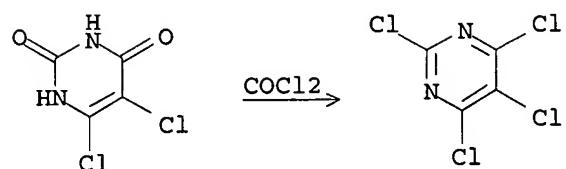
RX(6) OF 83



87%

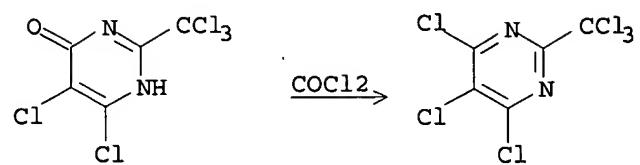
REF: Chemical & Pharmaceutical Bulletin, 34(7), 2719-24; 1986

RX(1) OF 4



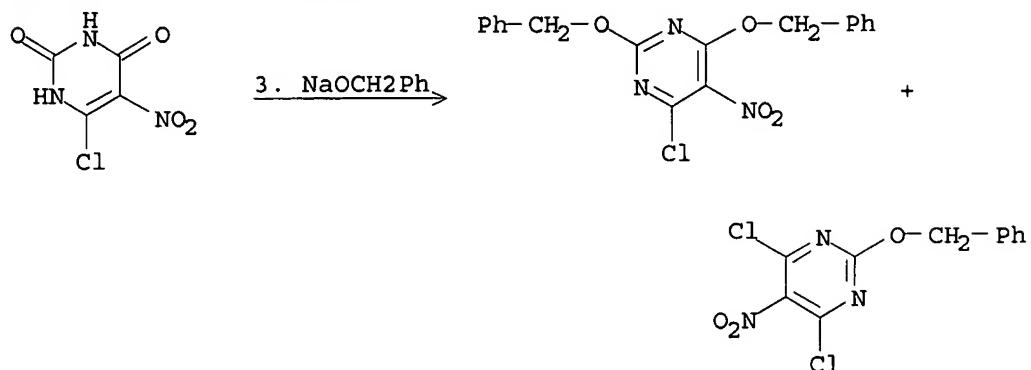
REF: Ger. Offen., 3441935, 28 May 1986

RX(1) OF 3



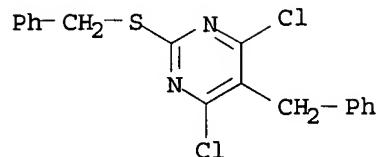
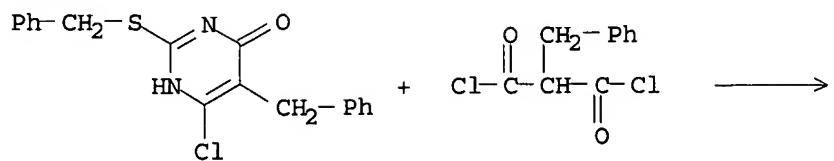
REF: Ger. Offen., 3441789, 15 May 1986

RX(73) OF 117 - 6 STEPS



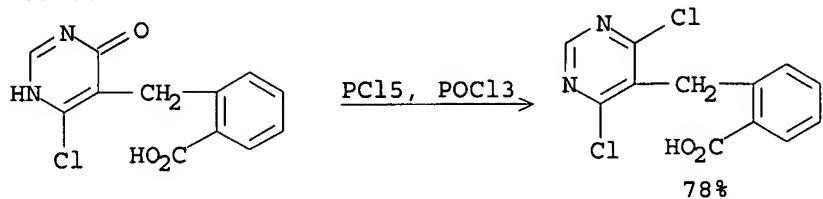
REF: Yakugaku Zasshi, 105(4), 362-7; 1985

RX(2) OF 10



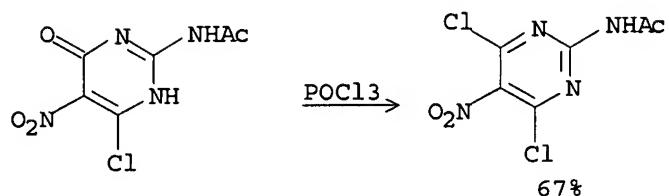
REF: Journal of the Chemical Society, Perkin Transactions 1: Organic and Bio-Organic Chemistry (1972-1999), (10), 2499-503; 1982

RX(13) OF 63



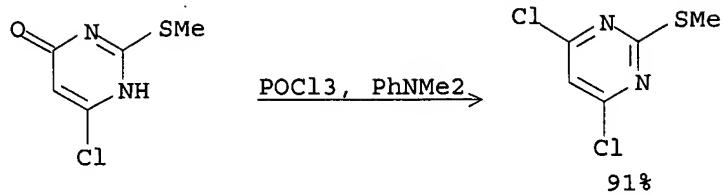
REF: Bulletin de la Societe Chimique de France, (1-2, Pt. 2), 92-6;
1977

RX(1) OF 6



REF: Journal of Organic Chemistry, 40(21), 3141-2; 1975

RX(1) OF 1

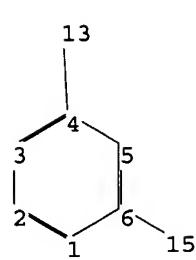
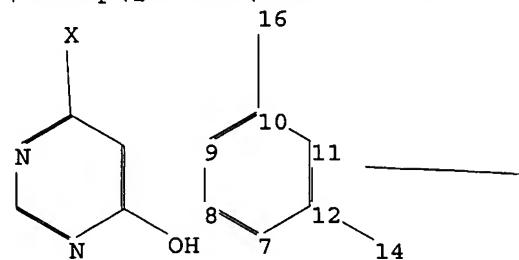
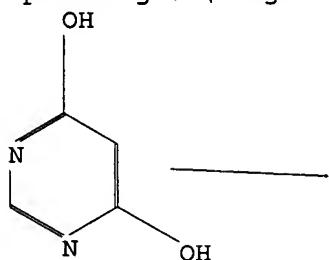


91%

REF: J. Org. Chem., 27,, 1462-3; 1962

NOTE: Classification: Chlorination; Substitution; # Conditions: POCl₃
PhNMe₂; boil 2h

=>
Uploading C:\Program Files\Stnexp\Queries\10109093.str



chain nodes :

13 14 15 16

ring nodes :

1 2 3 4 5 6 7 8 9 10 11 12

chain bonds :

4-13 6-15 10-16 12-14

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12

exact/norm bonds :

6-15 10-16 12-14

exact bonds :

4-13

normalized bonds :

1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom

11:Atom 12:Atom 13:CLASS 14:CLASS 15:CLASS 16:CLASS

fragments assigned product role:

containing 1

fragments assigned reactant/reagent role:

containing 7

L4 STRUCTURE UPLOADED

=> s 14

SAMPLE SEARCH INITIATED 15:37:00 FILE 'CASREACT'

SCREENING COMPLETE - 0 REACTIONS TO VERIFY FROM 0 DOCUMENTS

100.0% DONE 0 VERIFIED 0 HIT RXNS

0 DOCS

SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**

PROJECTED VERIFICATIONS: 0 TO 0

PROJECTED ANSWERS: 0 TO 0

L5 0 SEA SSS SAM L4 (0 REACTIONS)

=> s 14 sss full

FULL SEARCH INITIATED 15:37:10 FILE 'CASREACT'

SCREENING COMPLETE - 32 REACTIONS TO VERIFY FROM

15 DOCUMENTS

100.0% DONE 32 VERIFIED 5 HIT RXNS

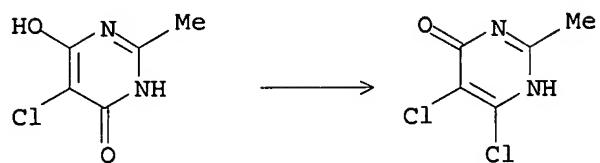
3 DOCS

SEARCH TIME: 00.00.01.

L6 3 SEA SSS FUL L4 (5 REACTIONS)

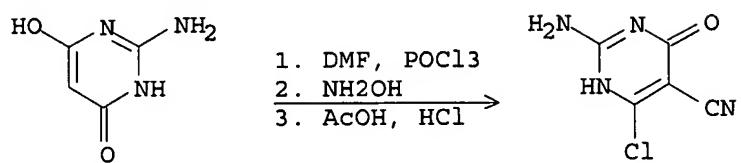
=> d 1-3

RX(63) OF 108 - 2 STEPS



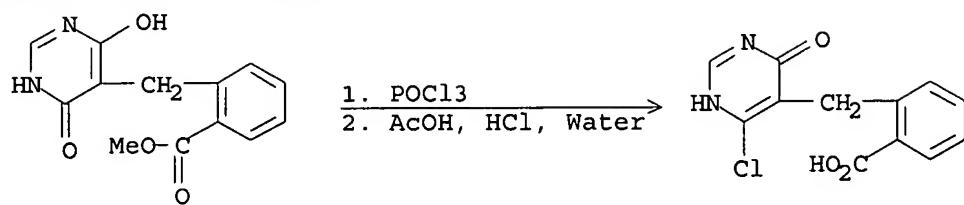
REF: Journal of Medicinal Chemistry, 31(4), 814-23; 1988
NOTE: 1) no details; ref.

RX(21) OF 38 - 3 STEPS



REF: Journal of Heterocyclic Chemistry, 20(1), 41-4; 1983

RX(28) OF 63 - 2 STEPS



REF: Bulletin de la Societe Chimique de France, (1-2, Pt. 2), 92-6;
1977

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=> file reg  
COST IN U.S. DOLLARS  
FULL ESTIMATED COST
```

	SINCE FILE ENTRY	TOTAL SESSION
	231.15	231.36

FILE 'REGISTRY' ENTERED AT 15:38:07 ON 10 FEB 2003
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Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES: 7 FEB 2003 HIGHEST RN 487578-67-6
DICTIONARY FILE UPDATES: 7 FEB 2003 HIGHEST RN 487578-67-6

TSCA INFORMATION NOW CURRENT THROUGH MAY 20, 2002

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

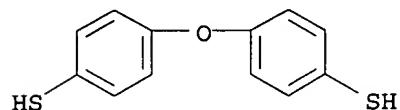
Experimental and calculated property data are now available. See HELP PROPERTIES for more information. See STNote 27, Searching Properties in the CAS Registry File, for complete details:
<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

```
=> s c4h2cl2n2  
L7          70 C4H2CL2N2  
  
=> s l7 and 4 and 6  
    12125912 4  
    5588147 6  
L8          31 L7 AND 4 AND 6  
  
=> d 'scan
```

L8 31 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Benzenethiol, 4,4'-oxybis-, dilithium salt, polymer with
3,6-dichloropyridazine (9CI)
MF (C₁₂ H₁₀ O S₂ . C₄ H₂ Cl₂ N₂ . 2 Li)x
CI PMS

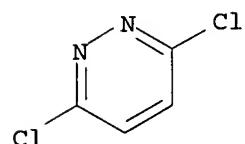
RELATED POLYMERS AVAILABLE WITH POLYLINK

CM 1



●2 Li

CM 2



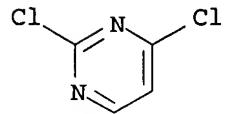
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):0

=> s 18 and pyrim?/cns
696077 PYRIM?/CNS

L9 7 L8 AND PYRIM?/CNS

=> d scan

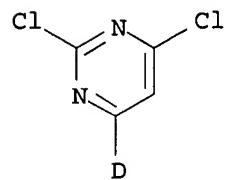
L9 7 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Pyrimidine, 2,4-dichloro- (7CI, 8CI, 9CI)
MF C4 H2 Cl2 N2
CI COM



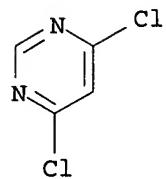
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):6

L9 7 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Pyrimidine-4-d, 2,6-dichloro- (9CI)
MF C4 H Cl2 D N2



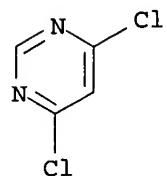
L9 7 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Pyrimidine, 4,6-dichloro- (7CI, 8CI, 9CI)
MF C4 H2 Cl2 N2
CI COM



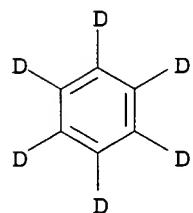
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L9 7 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Pyrimidine, 4,6-dichloro-, compd. with benzene-d₆ (1:1) (9CI)
MF C₆ D₆ . C₄ H₂ Cl₂ N₂

CM 1

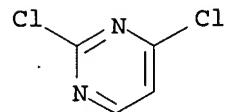


CM 2

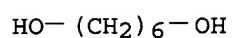


L9 7 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN 1,6-Hexanediol, polymer with 2,4-dichloropyrimidine (9CI)
MF (C₆ H₁₄ O₂ . C₄ H₂ Cl₂ N₂)_x
CI PMS

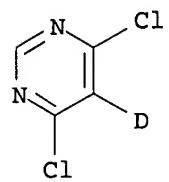
CM 1



CM 2

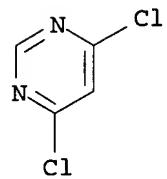


L9 7 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Pyrimidine-5-d, 4,6-dichloro- (9CI)
MF C4 H Cl2 D N2



L9 7 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Pyrimidine, 4,6-dichloro-, homopolymer (9CI)
MF (C4 H2 Cl2 N2)x
CI PMS

CM 1



ALL ANSWERS HAVE BEEN SCANNED

```
=> s l9 not 2  
      14848512 2  
L10          4 L9 NOT 2
```

```
=> file caplus  
COST IN U.S. DOLLARS  
FULL ESTIMATED COST
```

SINCE FILE ENTRY	TOTAL SESSION
23.90	255.26

FILE 'CAPLUS' ENTERED AT 15:42:36 ON 10 FEB 2003
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FILE COVERS 1907 - 10 Feb 2003 VOL 138 ISS 7
FILE LAST UPDATED: 9 Feb 2003 (20030209/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

```
=> s l10/prep  
      219 L10  
      2963997 PREP/RL  
L11          21 L10/PREP  
                  (L10 (L) PREP/RL)
```

```
=> d scan
```

L11 21 ANSWERS CAPLUS COPYRIGHT 2003 ACS
IC ICM C07D239-30
CC 28-16 (Heterocyclic Compounds (More Than One Hetero Atom))
TI Preparation of 4,6-dichloropyrimidine by chlorination of
4,6-dihydroxypyrimidine with phosphorus oxychloride.
ST chloropyrimidine prep; pyrimidine dichloro prep; hydroxypyrimidine
chlorination phosphorus oxychloride
IT Chlorination
(preparation of 4,6-dichloropyrimidine by chlorination of
4,6-dihydroxypyrimidine with phosphorus oxychloride)
IT 1193-21-1P, 4,6-Dichloropyrimidine
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
(Preparation)
(preparation of 4,6-dichloropyrimidine from 4,6-dihydroxypyrimidine)
IT 1193-24-4, 4,6-Dihydroxypyrimidine
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of 4,6-dichloropyrimidine from 4,6-dihydroxypyrimidine)

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):0

=> file reg			
COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION	
FULL ESTIMATED COST	2.97	258.23	

FILE 'REGISTRY' ENTERED AT 15:44:14 ON 10 FEB 2003
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provided by InfoChem.

STRUCTURE FILE UPDATES: 7 FEB 2003 HIGHEST RN 487578-67-6
DICTIONARY FILE UPDATES: 7 FEB 2003 HIGHEST RN 487578-67-6

TSCA INFORMATION NOW CURRENT THROUGH MAY 20, 2002

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. See HELP PROPERTIES for more information. See STNote 27, Searching Properties in the CAS Registry File, for complete details:
<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

=> s thionyl chloride
392 THIONYL
823594 CHLORIDE
L12 137 THIONYL CHLORIDE
(THIONYL (W) CHLORIDE)

=> d scan cn

L12 137 ANSWERS REGISTRY COPYRIGHT 2003 ACS
IN Cobalt, [2,9,16,23-tetrakis(2,2-dimethylpropoxy)-29H,31H-phthalocyaninato(2-) -N29,N30,N31,N32]bis(thionyl chloride-O)-, (OC-6-12) -
(9CI)

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):d scan cn
'D SCAN CN' IS NOT VALID HERE

To display more answers, enter the number of answers you would like to see. To end the display, enter "NONE", "N", "0", or "END".

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):0

```
=> s (thionyl chloride)/cn  
L13      1 (THIONYL CHLORIDE)/CN
```

```
=> file caplus  
COST IN U.S. DOLLARS  
SINCE FILE      TOTAL  
ENTRY          SESSION  
FULL ESTIMATED COST      13.46      271.69
```

FILE 'CAPLUS' ENTERED AT 15:45:34 ON 10 FEB 2003
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FILE COVERS 1907 - 10 Feb 2003 VOL 138 ISS 7
FILE LAST UPDATED: 9 Feb 2003 (20030209/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

```
=> s l11 and l13  
        4643 L13  
L14      3 L11 AND L13  
  
=> d 1-3 cbib pi abs
```

L14 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2003 ACS

2001:114648 Document No. 134:147613 Regioselective procedure for the production of 4,6-dichloropyrimidine by the chlorination of 4-chloro-6-methoxypyrimidine in the presence of phosphorus compounds using sulfur-containing chlorination agents. Mais, Franz-Josef; Klausener, Alexander; Cramm, Guenther; Steffan, Guido (Bayer A.-G., Germany). Ger. Offen. DE 19938500 A1 20010215, 4 pp. (German). CODEN: GWXXBX.

APPLICATION: DE 1999-19938500 19990813.

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19938500	A1	20010215	DE 1999-19938500	19990813
	WO 2001012610	A1	20010222	WO 2000-EP7401	20000731
		W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM		
		RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG		
	EP 1210337	A1	20020605	EP 2000-948019	20000731
		R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL		
AB	4,6-Dichloropyrimidine is prepared in high yield and selectivity by the chlorination of 4-chloro-6-methoxypyrimidine in the presence of phosphorus compds. R ₃ P:Y _n [R = (un) substituted C ₁ -10 alkyl, (un) substituted C ₆ -10 aryl; Y = O, S; n = 0, 1] (e.g., triphenylphosphine oxide) using sulfur-containing chlorination agents (e.g., thionyl chloride).				

L14 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2003 ACS

2000:909667 Document No. 134:56686 Procedure for the production of 4,6-dichloropyrimidine by the chlorination of 4-chloro-6-hydroxypyrimidine with acid chlorides. Mais, Franz-Josef; Cramm, Guenther; Klausener, Alexander; Steffan, Guido (Bayer A.-G., Germany). Ger. Offen. DE 19929353 A1 20001228, 4 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1999-19929353 19990626.

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI DE 19929353	A1	20001228	DE 1999-19929353	19990626
WO 2001000591	A2	20010104	WO 2000-EP5416	20000613
WO 2001000591	A3	20010525		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
EP 1196393	A2	20020417	EP 2000-942058	20000613
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2003503392	T2	20030128	JP 2001-507001	20000613
AB 4,6-Dichloropyrimidine is prepared in high yield and selectivity by the chlorination of 4-chloro-6-hydroxypyrimidine with an acid chloride (e.g., POCl ₃).				

L14 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2003 ACS

2000:909665 Document No. 134:56684 Procedure for the production of 4,6-dichloropyrimidine by the chlorination of 4-chloro-6-methoxypyrimidine with acid chlorides in the presence of hydrogen halides. Mais, Franz-Josef; Cramm, Guenther; Klausener, Alexander; Steffan, Guido (Bayer A.-G., Germany). Ger. Offen. DE 19929350 A1 20001228, 4 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1999-19929350 19990626.

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19929350	A1	20001228	DE 1999-19929350	19990626
	WO 20001000592	A1	200010104	WO 2000-EP5400	20000613
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
	EP 1194412	A1	20020410	EP 2000-938784	20000613
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO			
	JP 2003503393	T2	20030128	JP 2001-507002	20000613
	US 6441170	B1	20020827	US 2001-19092	20011219
AB	4,6-Dichloropyrimidine is prepared in high yield and selectivity by the chlorination of 4-chloro-6-methoxypyrimidine with an acid chloride such as PCl ₃ , POCl ₃ , PCl ₅ , RPCl ₂ [R = (un)substituted C ₆ -10 aryl, (un)substituted C ₁ -10 alkyl], RPCl ₄ , RPOCl ₂ , R ₁ COCl [R ₁ = Cl, (un)substituted C ₁ -10 alkoxy, (un)substituted C ₆ -10 aryloxy, (un)substituted C ₅ -11 heteroaryloxy, OCCl ₃ , COCl], or SOCl ₂ in the presence of a hydrogen halide (e.g., HCl).				

=> logoff

ALL L# QUERIES AND ANSWER SETS ARE DELETED AT LOGOFF

LOGOFF? (Y)/N/HOLD: .

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	8.08	279.77

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-1.95	-1.95

STN INTERNATIONAL LOGOFF AT 15:46:51 ON 10 FEB 2003

[Home](#) | [Contact Us](#) | [Profile](#) | [Quote](#)[Request](#)**Phosgene
COCl₂**[Gas Mixtures](#) | [Refrigerants](#) | [Pure Gas](#)
[Carbon](#)[Equipment](#) | [Defense Services](#) | [Guestbook](#)[Periodic Chart](#)[Incompatibility Chart](#)[Oxides Chart](#)[Reference](#)**Material****General Characteristics****Health Hazards****Recommendations**

A colorless, nonflammable and liquified gas with an odor similar to most hay.	A simple asphyxiant.	Dry Gas: Stainless steel, copper and brass - Moist Gas: Monel
---	----------------------	---

TLV-TWA**Flammable Limits****DOT Class / Label**

0.1 ppm

Nonflammable

2.3 / Poison Gas

Molecular Weight**Specific Gravity****Specific Volume**

98.9

3.48 @ 77° F

3.8 cu.ft./lb @ 70° F

CGA Valve Outlet**CAS Registry No.****UN Number**

660

75-44-5

1076

Nationl Stock Number (NSN)**Applicable to Phosgene****MIL Specs/ Fed Specs****MSDS for Phosgene**

Grade Part #	Purity Minimum	Cylinder Size	Volume LBS	Pressure @ 70 F	Comments
Chemically Pure 471800	99% Min. Liquid Phase	044 007 003 002	95 10 5 1	10.7 10.7 10.7 10.7	None

Uses: Phosgene - COCl₂ is used in organic synthesis, in manufacture of dyes, pharmaceuticals, herbicides, insecticides, synthetic foams, resins, and polymers. Phosgene is a lung irritant and extremely toxic. It is also produced in the presence of refrigerants that are drawn through a heat source, refrigeration technicians should take extreme caution and prevent the exposure by making sure that smoking is avoided in the presence of refrigerants and preventing inhalation of the gas when soldering or brazing.

Also called CARBONYL CHLORIDE, a colourless, chemically reactive, highly toxic gas having an odour like that of musty hay, used in making organic chemicals, dyestuffs, polycarbonate resins, and isocyanates for making polyurethane resins. It first came into prominence during World War I, when it was used, either alone or mixed with chlorine, against troops. Inhalation causes severe lung injury, the full effects appearing several hours after exposure.

First prepared in 1811, phosgene is manufactured by the reaction of carbon monoxide and chlorine in the presence of a catalyst. It can be formed by the thermal decomposition of chlorinated hydrocarbons; e.g., when carbon tetrachloride (q.v.) is used as a fire extinguisher. Gaseous phosgene, which has a density about three and one-half times that of air, liquefies at a temperature of 8.2° C (46.8° F); it is usually stored and transported as the liquid under pressure in steel cylinders or as a solution in toluene. With water, phosgene reacts to form carbon dioxide and hydrochloric acid.

Last Updated: 98 AUG 10